

# Joseph Francis

(1801-1893)

*Shipbuilder*

*Father of the  
U.S. Life-Saving  
Service*

JOHN B. EHRHARDT





*“Were American Newcomen to do naught else, our work is well done if we succeed in sharing with America a strengthened inspiration to continue the struggle towards a nobler Civilization—through wider knowledge and understanding of the hopes, ambitions, and deeds of leaders in the past who have upheld Civilization’s material progress. As we look backward, let us look forward.”*

—CHARLES PENROSE  
*Senior Vice-President for North America  
The Newcomen Society of England*

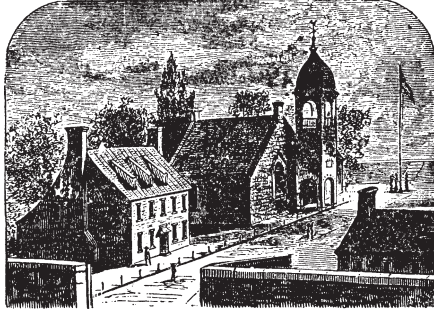


*This statement, crystallizing a broad purpose of the Society, was first read at the Newcomen Meeting at New York World’s Fair on August 5, 1939, when American Newcomen were guests of the British Government.*

*“Actorum Memores simul affectamus Agenda”*

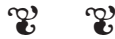
JOSEPH FRANCIS (1801-1893): *Shipbuilder; Father of  
the U.S. Life-Saving Service.*

*A Centenary Address, celebrating the 100th Anniversary  
(1850-1950) of Ocean County, New Jersey, U.S.A.*



AMERICAN NEWCOMEN, *through the years, has honored  
important anniversaries of communities both in the  
United States of America and in Canada; and has hon-  
ored the memories of men whose pioneer efforts brought  
distinction to these communities. Such a Newcomen man-  
uscript is this, dealing with the Centenary of Ocean Coun-  
ty, New Jersey, and with the life and times and achieve-  
ments of a distinguished figure in American Shipbuild-  
ing and American Life-Saving, who brought fame to  
Toms River, County Seat of Ocean County, New Jersey.*

*The story of that man's life is colorful, dramatic,  
and of great human interest and human benefit!*





JOSEPH FRANCIS  
(1801-1893)



*Father of the U.S.  
Life-Saving Service*



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(1801-1893)  
*Shipbuilder*

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U.S. Life-Saving  
Service*

JOHN B. EHRHARDT

MEMBER OF THE NEWCOMEN SOCIETY

GENERAL NEWS EDITOR

"THE MADISON EAGLE"

MADISON

NEW JERSEY



THE NEWCOMEN SOCIETY IN NORTH AMERICA

NEW YORK

SAN FRANCISCO

MONTREAL

1950

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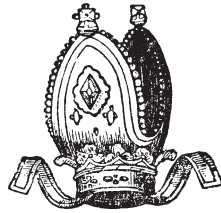
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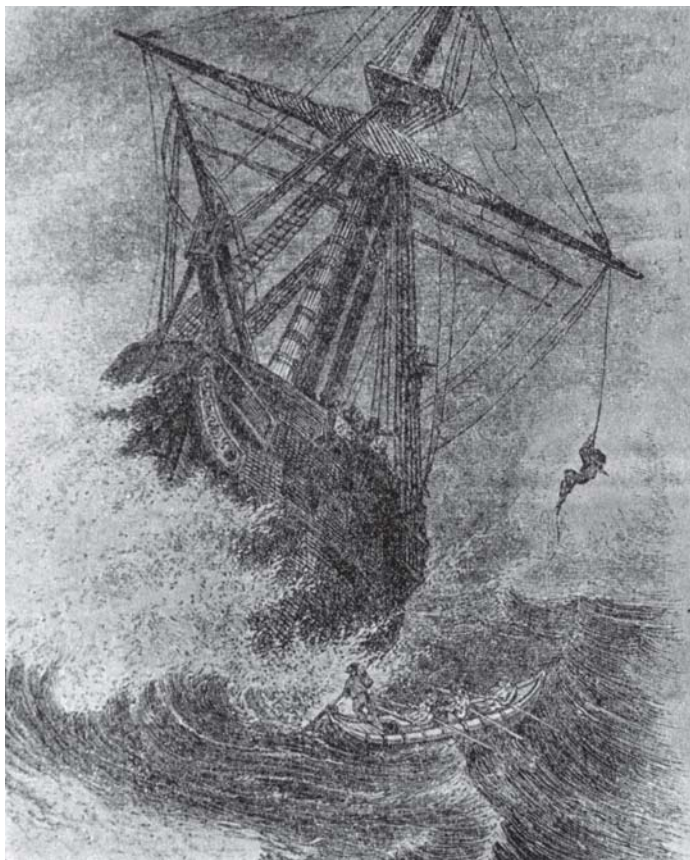
*This Newcomen Address, memorializing the  
Centenary of Ocean County, New Jersey, and  
dealing with the life and times and work of  
Joseph Francis (1801-1893), much of whose  
life was spent and work was done in Toms  
River, was delivered during the "1950 New  
Jersey Luncheon" of The Newcomen Society of  
England, held at Ye Olde Cedar Inn, near  
Toms River, New Jersey, U.S.A., when Mr.  
Ehrhardt was the guest of honor, on  
July 27, 1950*



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SET UP, PRINTED AND BOUND IN THE UNITED STATES  
OF AMERICA FOR THE NEWCOMEN SOCIETY IN  
NORTH AMERICA BY PRINCETON UNIVERSITY PRESS





“The metallic, unsinkable, self-righting, self-bailing life-saving craft—a contribution of highest value to ocean safety—came with the brilliant advent of Joseph Francis.

“It heralded a new day in the voyages of men upon the face of great waters.”

—JOHN B. EHRHARDT



## Biographical Sketch of The Author

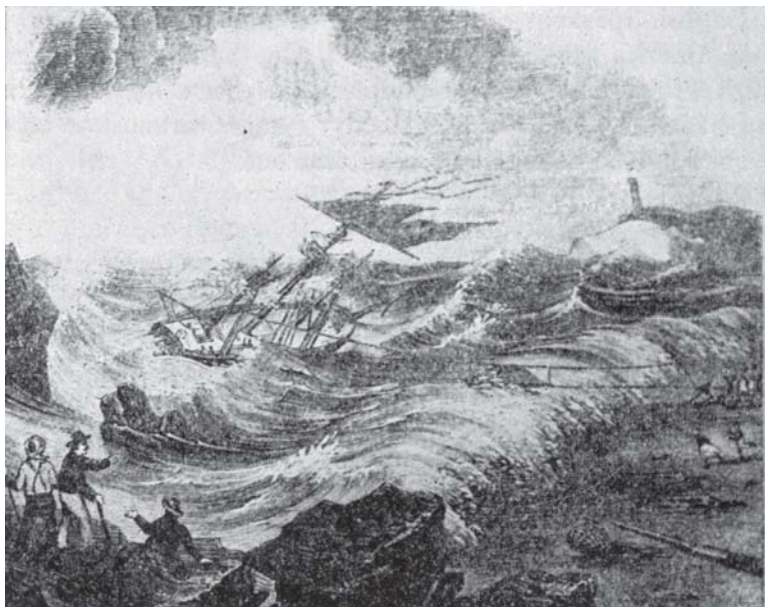


*Wherever white canvas shall sail a blue horizon, wherever low smoke trail shows labored path of ocean tramp, wherever wind and tide and weather bring daily challenge to skill and courage and fortitude—in short, wherever mariner shall set out upon his appointed voyages in sea-borne trade, there indeed will he be exposed to perils of the Great Deep! In days gone by, these perils were very real; many survived, but many never returned. Few, in early years, paid just heed nor attempted any remedy. Life-saving, as an organized agency, was unknown. And then, through brilliant genius of an American shipbuilder to whom humanity and mercy made their strong appeal, the subject of ocean safety took new meanings, not only by his inventive skill and resourcefulness, but by his organizing ability—an ability earning for him a deserved title of “Father of the U.S. Life-Saving Service.” It is the life and work and distinguished contributions by this man that now are recited and made to live again by John Bohne Ehrhardt, General News Editor of “The Madison Eagle” at Madison, New Jersey. One of the younger members of American Newcomen who has undertaken historical research and authorship, Mr. Ehrhardt already has made a name for himself in the field of historical writing, especially in dealing with maritime subjects. He has devoted much attention to that study, in New Jersey waters; including: shipbuilding, navigation, commerce, and trade. His writings have been contributed both to British and American publications. Among the latter are: “The New York Times”; “The New York Herald-Tribune”; “The Rudder”; and others. Has had about sixty publications in the national press. The Sea long has held fascination for him! Editor, author, student of marine history, good citizen, Mr. Ehrhardt is a member of the New Jersey Committee, in  
The Newcomen Society of England.*



HIS MARK





*Use of Joseph Francis' "life-car"*

*My fellow members of Newcomen:*

**W**E ARE GATHERED to honor an industrial genius now, unfortunately, almost forgotten. We honor, too, this County of Ocean, the scene of his greatest triumphs, in New Jersey. Joseph Francis of Toms River has left his monuments all over the face of the Earth. They are monuments in flesh and blood. For the true and fitting *memorials* of this man Francis are *the bodies* of the men—and their descendants—whose *lives* his inventions *preserved*!



Before turning to the subject of this day's Newcomen presentation, it will be useful to delve briefly into the history of *life-saving*, so that we can reconstruct a picture of the maritime world as it existed *before* Joseph Francis began his monumental work.



We like to do this especially since it is a subject that spans oceans and provides one more link of fellowship and brotherhood between

the English-Speaking countries. In this effort, England and the infant America worked hand-in-hand. One hundred years ago, a British writer noted with honorable pride that a master mariner from a foreign country had testified: "I knew we must be off the coast of England because a lifeboat came out."



The first record we have of an attempt to provide a vessel especially for life-saving is found in the history of Lionel Lukin, a London coach builder, who constructed some models of such boats, in the 1780's, under patronage of the then Prince of Wales, later George IV.



The only Lukin boat actually to take and keep a station was a small rebuilt coble, a clumsy but staunch type of pulling boat widely used about the coasts of Yorkshire and Northumberland. Lukin redesigned this boat, adding air chambers and cork bunks to render it unsinkable. The vessel was posted to Bamborough, just south of Berwick-on-Tweed, and was maintained there at the expense of Archdeacon Sharp—thus displaying once again the ancient role of the Church as the patron and protector of the afflicted.



None of Lukin's Models was self-bailing or self-righting. This type of equipment remained standard in Great Britain until 1849, when it was retired in favor of vessels not notably different from those in use today. The Royal National Life-Boat Institution had been formed in 1824, with a fund of £9,826; the organization maintained twelve Lukin-type boats in as many stations along the English Coast. In 1849, however, twenty out of the twenty-four men of one of the Institution's "double crews" gave their lives in an unsuccessful rescue attempt. This shocking loss brought out the full efforts of the maritime genius of Great Britain; and, within two years, a self-bailing, self-righting vessel was designed and twelve copies built. Since that date, the "Institution" model has become standard with most of the maritime nations of the World.

In America, efforts to succor the shipwrecked were quite in step with those Abroad. As early as 1789, the Massachusetts Humane Society maintained shelters for castaway mariners; but, up to 1807, there were no formal attempts to make rescues by land-based surf-boats. In the latter year, a boat and volunteer crew were established at Cohasset and maintained there until replaced by U.S. Government equipment and personnel, many years later. This boat was, of course, an ordinary whaleboat. The metallic, unsinkable, self-righting, self-bailing craft came later, with the advent of Joseph Francis.



Such then, was the picture along our shores in the early part of the Nineteenth Century. It was bleak enough; equipment was clumsy and inadequate, personnel was volunteer and untrained. Yet there is a note of glory in it.

In other parts of the World, the unfortunate mariner might expect to be left to his fate by a superstitious populace that feared to dispute with the Sea for its prey. Or, if the castaway managed to reach the shore unaided, he could be quite certain that he would be stripped and robbed by a predatory element ashore.



In England and in America, this was not so. There were few formal arrangements for the relief or for the rescue of the castaway, it is true. But wherever the mariner came upon misfortune along those shores, if there were men at all in the neighborhood, the unfortunate could be certain that these men of the beach would risk their boats and even their lives in his service. Once ashore, he could be sure of shelter and comfort and the full restoration of all of his property that it had been possible to snatch from the Sea. Or, if he were totally unfortunate, he could equally be sure that the compassionate folk of the shore would give him decent burial, beside their own dead.



Such were the people among whom Joseph Francis was born in Boston, Massachusetts, on March 12, 1801. He was the son of

Thomas and Margaret Francis, modest and respectable citizens of that New England city. The record tells little more.

Indeed, for what little we know of his history in the early years we are indebted to Joseph Francis' own pen. He tells almost nothing about his youth, though he wrote copiously throughout his long life. No doubt a manly modesty required this. Quite as likely, Joseph Francis' native temperament would not permit him long to dwell upon the past. We find him here in Toms River, *in his seventy-fifth year*, conducting experiments with a new, circular hull form. Such a man would always be looking *to the future!*



The first eleven years of Francis' life must have been quite comfortable. He received a good education according to the strict, if circumscribed, standards of the times; and had, it would seem, sufficient leisure and funds to embark upon some nautical experiments at an early age. Before his eleventh birthday, he had constructed a small boat with his own hands. Apparently, the idea of an unsinkable boat already was in his mind, for even this boyish essay had reserve flotation provided by air chambers.

Shortly after his eleventh birthday, however, Joseph Francis' pleasant school-boy world changed. Thomas Francis passed away and his son took up part of the burden of providing for his mother and his six brothers and sisters. Before the age of twelve, he went to work as a page in the Massachusetts State Senate and retained that post for about four years, far removed from the beach and the water that ever called him.



In 1816, however, he obtained a mechanic's position in a boat-yard belonging to a relative. Later, he was able to secure a section of the yard in which to work by himself. Here he built a small rowboat which received first prize, in 1819, from the Massachusetts Mechanics' Institute.



Emboldened by this early success, the young builder moved to New York and set up his own business. Once again, he is reticent concerning this part of his life, though he does describe, the first

years in the growing city as "discouraging." However, he did secure contract for the manufacture of small boats for the Ship-of-the-Line *Alabama* and for the *Santee* frigate, both then a-building at Portsmouth Navy Yard, in Maine. By such work-a-day assignments he maintained his credit and perfected skill until some more notable opportunity should present itself.



About 1830—when, we will remember, our subject was some 29 years of age—a group of wealthy young sportsmen formed a *rowing club* in New York. Robert L. Stevens, Ogden Hoffman, Samuel Verplanck, Charles L. Livingston, Robert Emmet, and John Stevens banded together under the name of "The New York Boat Club." This eventually became "The New York Yacht Club," winner and defender of the "America's Cup" even to this day.

In 1830, however, the aforesaid young gentlemen were after smaller game. Francis was well-known as a skillful builder, and he was commissioned to build the club's first boat. Little is known about her save that she was built of wood, that she served the club for some years, and that, later, this first boat was presented to the Russian Tsar.

The vessel must have been quite satisfactory however, since Joseph Francis was promptly ordered to build a second boat for the same group. This craft, *Seadrift*, was destined to become something of a Methuselah among small boats and, accordingly, we have very accurate information concerning her.

*Seadrift* was a double-banked barge of 16 oars, 30 feet long, framed in chestnut oak, and fastened with copper rivets throughout. The boat was polished inside and out, and finished without paint. Above the thwarts, she was paneled with ebony, rosewood, and mahogany; knees and rowlocks were brass. It is significant that Francis built this vessel entirely alone. Apparently, even at age of 30, he could not yet afford a helper.



*Seadrift's* history is an interesting testimonial to the honesty and skill of her builder. After the young gentlemen turned their

attention to larger craft, one of the members, Samuel Verplanck, acquired sole title to the big barge. She changed hands rapidly after that, but we have been able to trace the old boat's career to the Year 1878, at which time *Seadrift* was 47 years old. In that year, she still was in service and still considered "good-as-new."

The record of *Seadrift* ends there, though it is hoped that this mention of her history may elicit later information; for it hardly seems probable that a craft which could survive close to a half-century without measurable defect could fail to endure a decade or two more.



About that period, the *weight* problem began to occupy our subject. He tried the lightest material then available—Spanish cedar—and succeeded in turning out a thirty-foot boat that weighed only sixty pounds. Again, some fancier desired a Venetian gondola—for use in the Hudson River. Francis obtained a full description of the Venetian craft and produced a perfect replica, 27 feet long and 5 feet wide, upholstered in silk and satin. For some years, this boat was in use on the North River near Bloomingdale (about the foot of West 125th Street, New York, today). Later, the strange craft was transferred to the lake of Greenwood Cemetery in Brooklyn.



Many other unusual enterprises crowded this experimental period. One boat of conventional model was constructed, but so assembled that it could be separated into portable sections by removing a few screws; this was patented in 1833. Another vessel was built without ribs or framing, assembled of cedar strips one-inch square, nailed edge to edge and showing no nails or seams. This form of construction enjoyed some vogue for a while, and has been revived in various periods since that day; Joseph Francis executed several orders for such boats in the 1830's, one being for H.M. Frigate *Warspite*, Lord John Hay, commanding.



The skills accumulated through these years of work-a-day activities finally bore fruit in 1841, when the inventor presented a

wooden self-righting, self-bailing, compartmented *lifeboat* to The New York Chamber of Commerce. The vessel received a thorough trial and was finally adopted as recommended equipment for American packet ships. This improvement was covered by patent issued in the same year.



It will be seen that several developments were moving to a common end. The boat designer had carried his forms to perfection; the wooden boats were able, self-righting, self-bailing, and unsinkable. At the same time, the mechanic had reached the pinnacle of his art. The wooden craft had shown definite limitations in the aspect of the strength-weight ratio. An adequately, strong *wooden* boat was too heavy; a sufficiently light *fabric* using the same materials was hardly strong enough. Joseph Francis inevitably was driven to investigate other materials.



Iron, of course, was a possibility. The man who had spent close to thirty years acquiring a consummate craftsmanship in wood now turned to a new material and began to learn all over again. Fortunately, his tuition was short.

This episode must inevitably seem amazing to the man of the Twentieth Century. We know, from the experience of our own generation, that it required close to forty years for Detroit and Philadelphia to learn some method of drawing a metal sedan top *in a single piece*. It would appear that Joseph Francis not only learned how to draw the complex curves of a boat hull with one stroke of the dies, but also cut the dies and constructed the press in the space of less than a year. And, having achieved this great success, he threw the dies away.

He turned his back upon this seeming success, because it was no success at all. The dies could draw smooth boat sections, but they were not stiff. In order to stiffen them, either the thickness of the metal must be increased—which would increase the weight to an impossible figure—or some other more practical answer must be found.

Now we know that centuries ago the armorers of the late Middle Ages had faced this problem. More than three hundred years before, the Family Massiglia or Jacopo ditto Bichigone (it is not clear which was first) had discovered that strong plate armor of minimum weight could be constructed *if welts or corrugations* were drawn or hammered into the plate. By this means, the armorers of Italy were able to turn out triple proof suits of sixty-five pounds weight, while the lightest comparable German armor weighed in excess of ninety pounds. We have this information today, but Joseph Francis could hardly have known it.



A few gleams of information sidelight these struggling years. There must have been bleak periods. For one term of close to two years, Myndert Van Schoick, ex-Mayor of New York, let him have the premises at 83 Anthony Street in New York, rent-free for a workshop. One story that survives is the tale of how Joseph Francis worked out his dies in hardwood first and tested them in forming sheets of cardboard, before risking his funds on proper *metal* apparatus for drawing iron. One other tale tells about the day he had spent close to his whole capital upon boat materials, and used the few coppers remaining for a supply of bread and molasses, which was to be his larder for the week to come. Alas, he had but one feast out of it, for, in the night, the rats made off with the remainder of his bread.



During these struggling years, he often was a guest at the home of General John Adams Dix, father of the man who later was to be Rector of old Trinity Church in New York, for close to a half-century. This was a fortunate association; years later, when Francis' priority in the field was questioned, Morgan Dix was able to testify by his personal knowledge of the plans and experiments of the 1840's.



In 1843, Horatio Allen of South Orange, partner in the firm of Stillman & Allen, secured for his firm a half-interest in Francis' projects. Stillman & Allen were to supply capital and facilities,



Francis the inventions and supervision; investor and inventor were to share equally in the profits. This arrangement is interesting since it pioneered the system later used in introducing the boats to Europe. It also is worthy of notice because it marks the beginning of prosperity for the now middle-aged inventor.



By 1845, Francis had his press completed, and had hired two workmen, Thomas McClarey and Joseph W. Casey. A third, William H. Navarro, joined him shortly thereafter. Navarro was an old friend and neighbor of the Anthony Street days, and later became the firm's agent Abroad.



The mechanically inclined of this present day may be interested in the final form of the Francis machine. The apparatus consisted of two dies, male and female, which, when brought together with great pressure, could form a flat sheet of iron to a precise half-boat, complete and one-piece to the line of the keel. Two such stampings, when joined along the mid-line, made a complete and seamless boat. There were no ribs, breasthooks or internal bracings. The fabric depended entirely upon its own stiffness for strength.

The curious thing to the modern observer is that Francis apparently gave no thought to power machinery. Certainly, there were enough steam-engines by the mid-40's to have made a power press possible. However, for some reason best known to himself, Francis preferred a hand-operated mechanism. Casey and McClarey worked the handles of the hydraulic jack while Francis and Navarro attended to the adjustment of the dies. The manual force of the two men, when multiplied by the hydraulic apparatus, was sufficient to the task.



Francis obtained his patent on this process, in 1845; at the same time, he commenced the manufacture of the *Nautilus* life-preserver. Both the latter and the iron boat were quickly adopted by The New York Chamber of Commerce, under leadership of the eminent surgeon, Valentine Mott. The *Nautilus* preserver caught on quick-

ly; it was produced and sold in volume since it could be cheaply made, cheaply sold, and easily carried about the person—in a coat pocket, to be precise. It is a good example of the homely practicality of Joseph Francis, for the *Nautilus* was simply a tube of accordion-plaited, impervious cloth, with the wooden closures at the ends. One end had a hole and an appropriate stopper.

With the stopper removed, the tube could be folded flat, like the musical instrument, and stowed about the person. When the bellows was extended however, it automatically filled with air; and, when the stopper was replaced, it remained inflated and could be buckled about the waist.



*Nautilus* provided an immediate source of income which was not unwelcome, since returns from the iron boats were slow. About this time, Francis married Helen Creamer of Salem, Massachusetts, and took lodgings separate from his shop.



By 1848, substantially a century ago, many of his metal life-boats were carried by ships clearing New York Harbor, both American and British. A surprising number of the latter carried Francis' boats, though the cost must have been distressingly high. The product of the American iron works of the age did not suit the Francis process, and sheet metal was, accordingly, imported from England. The American purchaser, of course, had to pay for an ocean passage on the raw materials; the unfortunate Britisher had to pay freight both ways.



By 1853, the United States Government had outlawed wooden life-boats on all steam vessels. In sail, they lingered longer; but Francis' choice of materials was amply vindicated.



It is interesting to note *the type of demonstration* used to sell the boats. Francis liked to take an iron boat, load it with paving blocks to the gunwales, then hoist it by tackles at bow and stern ten feet above a *rock-strewn* surface, at which point the inventor would cut

the ropes. Needless to say, a good many boats were dented in this way. However, the builder usually made a sale when the stone was removed and the boat launched, for, despite the abuse, the hull always was found water-tight and seaworthy.



We should, at this time, go back and consider briefly the life-saving arrangements of the day. We have seen how the first crude facilities grew, in England and in America. By the 1840's, there was considerable life-saving activity, though much of it was chaotic and badly coordinated. In those days, we will remember, even the large cities were without formal *fire* protection. A public-spirited citizen might organize a fire brigade in his neighborhood, and the brigade—if it were lucky—might find an insurer who was willing to donate a hand-operated pump. The underwriter would, of course, promptly affix plaques to those houses in the vicinity which were insured with him, and the fire company was expected to give such dwellings preferential treatment.



Not illogically, the same formula was followed along shore. In various places, underwriters kept “wreckmasters”—fiscal agents who were expected to head volunteer rescue crews, secure data on all shipwrecks, and protect the insurer's interest in the matter of salvage. Naturally, these men, whose actual responsibility was the protection of property, soon became valiant salvors of the lives of the unfortunate. Further, there were other groups. The Massachusetts Humane Society already has been noticed; the Chambers of Commerce of the major maritime cities likewise were active. Finally, a group of public-spirited citizens—among whom we find Joseph Francis listed—undertook to form a life-saving organization on the English plan, known at first as the “American Shipwreck Society.” It later merged with the venerable Massachusetts group, becoming the “American Shipwreck and Humane Society.” In 1871, the service passed entirely into the hands of government as the “United States Life-saving Service.” Finally, the latter was merged with the Revenue Cutter Service of the U.S. Treasury Department, in January of 1915, to become the United States Coast

Guard with its fine tradition of: "The book says we have to go out; it doesn't say anything about coming back."



It will be seen that arrangements for the relief of ill-starred mariners were unfortunately lax. This was pointed up, in 1846, when an exceptionally stormy season taxed the facilities along the New Jersey shore to their breaking point. A leading physician of Imlaystown, Dr. William A. Newell, became so aroused by this lack of preparation that he deserted his practice, gained admission to the U.S. Congress; and, in 1847, secured the first appropriation of five thousand dollars for life-saving equipment.

Newell's later career carried him back to Congress several times, then to the governorship of New Jersey, finally to the post of Governor of the Washington Territory. Except for brief service as a military surgeon during the War between the States, he never touched a scalpel again.



However, fully twelve months passed without any move to spend Newell's five thousand dollar fund. The Massachusetts Society petitioned Congress for the disposal of the money, offering to set up and maintain sixteen boats at as many shore stations, if the fund were turned over to the Society. Thus goaded into action, the federal legislators added another ten thousand dollars the following year, and provided that equipment was to be purchased and maintained at the lighthouse stations along the coast. There still was no thought of paid personnel; the boats would be manned by local volunteers.



Armed with a portion of this appropriation, Captain Douglass Ottinger of the Revenue Marine was sent to New Jersey, in October 1848, empowered to secure "surf-boats, rockets, carronades, and other necessary apparatus for the better preservation of life and property from shipwreck between Sandy Hook and Little Egg Harbor on the coast of New Jersey." Francis' iron boats were so well known that they became standard equipment; eventually, the Lighthouse Service had *seventy-eight* of them.

But, in the years since 1845, Francis had not been idle. It will be noted that Ottinger's orders referred to "rockets and Carronades." It was well known that rescues could often be effected in seas where no boat could live; provided the wreck were sufficiently close to shore for a *line* to be put aboard. A light line could carry a heavier out to the vessel, and the heavier line could carry a breeches buoy. Where the wreck was too far off-shore for a toss by hand, rockets or cannon projectiles could carry the messenger line. The real problem was *the breeches buoy*.

The buoy could carry but one person at a time; usually, the storm would not allow time for many trips before the wreck completely disintegrated. Further, the passenger was exposed to the elements, and often reached shore more dead than alive. Francis saw clearly that a *line* designed to carry a breeches buoy could carry a light, *enclosed container*, quite as well. The apparatus might be designed to carry as many as three passengers at one time, and the riders would be protected *within* the vessel, and should reach the shore in good condition.

It seemed logical to form the "life-car," as it was called, in the shape of a small boat or dinghy. It seemed quite as logical to adhere to the corrugated iron construction that had worked so well in life-boat design. Francis accordingly projected a completely enclosed, ten-foot iron hull that could ride a cable. Again, he designed special quick-acting, positive latches for the hatchways. And he presented his plans to the Secretary of the United States Treasury.

We may imagine the inventor's surprise when The Hon. Howell Cobb, Secretary of the Treasury of the United States of America, advised him that "the government has no money for experiments." However, officialdom quite generously offered to try his device, if he made a sample available at his own expense.



Nothing daunted, Francis constructed dies for this miniature life-boat. He notes that the machinery weighed three tons and cost him six thousand dollars to produce. In 1848, he turned out his first *life-car* with this equipment and requested the Lighthouse Service to assign a post for possible testing.

At this point, the simple mechanic learned another side of officialdom. Secretary Cobb would permit a test, but Captain Ottinger would permit none—unless the car were equipped with a pneumatic fender invented by one of the officer's friends. In vain, Francis protested; the rubber of those days was quite undependable and Francis always had preferred cork fenders, both on the life-boats and on the life-car. Finally, the matter was compromised and the original sample, with one cork fender and one pneumatic, was moved to Squan Beach, near the close of 1849, to await a call to service.

The waiting period was not long; on January 12, 1850, the ship *Ayrshire* went ashore off Squan, with 201 souls aboard. A carronade put a line aboard her and the Francis life-car was sent out. In successive trips, the little car brought 200 out of 201 victims safely ashore; the only loss of life occurred when a panicky passenger insisted upon trying to ride *outside* the car rather than *in it*. Further, Francis' judgment of the pneumatic fender was amply vindicated; the rubber gave way on an early trip and the fender filled with water, causing the car to oscillate in a disturbing fashion. Nevertheless, the apparatus completed all trips successfully.



The U.S. Lighthouse Service promptly ordered thirty cars and, before the close of 1854, Francis could count more than 2100 passengers rescued by his invention. The United States Patent Office, it is true, refused to recognize the car as a separate discovery; and, in 1851, had rejected his application for a patent on the grounds that the matter already was covered by patents previously issued—namely, to Joseph Francis for his construction of iron boats.



The inventor hardly was disturbed by this. He owned the only set of dies capable of turning out life-cars, and he was enjoying a substantial income from his various enterprises. In the early 1850's, he added a corrugated iron military wagon to his line of manufactures. Actually, the wagons were boats with wheels attached. When the running gear was removed, the wagon bodies could be used as assault boats or as pontoons, each wagon-bed being capable of supporting 2,100 pounds. Further, the iron was strong enough

to turn the musketry of those days, making a sort of primitive armored-car.

Francis sold fifty of these to the United States Army. Ten years later, Union generals would lament that a cautious government had bought no more, for a supply of such wagons was greatly needed during the Civil War.



Meanwhile, Europe was clamoring for his inventions. In 1852, he had sent William Navarro to Havre to initiate production of boats and wagons in France. In 1855, Francis followed, going first to France, and later to England.

At the Royal Dockyard in Woolwich, he repeated his favorite demonstration with the paving blocks. The dockyard promptly applied for a license to manufacture, and the request was granted. On September 4, 1856, the Ordnance Select Committee of the British Army recommended adoption of the pontoon wagon; and this item, too, went into production at Woolwich.



The license of the Royal establishment covered only manufactures for public purposes, and another license was accordingly issued to Messrs. McClure, MacDonald & MacGregor, operating as the Windsor Iron Works at 16 Fensick Street, in Liverpool. This provided a source of supply for the private user and for export. A similar arrangement was concluded with Ernst Merk of Hamburg, for manufacture on the Continent.



Little appears on record concerning the establishment at Havre, but we must assume that Navarro was doing his work well. The pontoon wagon was adopted by the French Army, and, on February 4, 1856, Napoleon III knighted the inventor.

Shortly thereafter, Francis demonstrated his wagon to the Imperial Army of Austria-Hungary and was rewarded with an

order for fifty, which were fabricated at the Merk Werke, in Hamburg.



During much of his early European stay, Francis had been in contact with Russian officers who wished him to visit their country. It developed that the Tsar desired a fleet of iron steamers, 150 to 200 feet long, for his forces on the Aral Sea. Francis agreed to go to the land of the Muscovites and attempt to fill their needs.

There are some things even a giant of Joseph Francis' stature should not attempt, and an unfortunate essay at a very precise and highly-skilled mechanical process in a semi-barbarous land would be one of them. After several discouraging years, Francis finally filled the order by having the boats built at the Windsor Iron Works, in Liverpool; after which the parts were shipped to Russia, transported over the Ural Mountains, and assembled on the shores of the Aral by British workmen. The Tsar rewarded him with the Knighthood of St. Stanislaus, and, without regret, the inventor returned homeward, loaded with honors.



In his own Country, Francis found a strange state of affairs. In 1858, Douglass Ottinger had applied for a patent on the life-car, claiming it as his invention; our U.S. Patent Office never has been known for corruption, and it is good to note that it rejected Ottinger's application precisely as it had that of Francis seven years before. Again, the officials cited the priority of the Francis patent of 1845.



Nothing daunted, Ottinger applied to friends in the proper places; and on February 14, 1859, a complacent Congress voted the *soi-disant* inventor a bounty of ten thousand dollars.



This was the state of affairs when Francis returned home, in 1863. Immediately, he began to assemble testimony to secure redress, but dropped proceedings when informed that Ottinger was dead. It appears that Horatio Allen had knowledge of the U.S.



Treasury raid, and had done what he could to frustrate it. Unfortunately, Allen was a business associate rather than a personal friend; he did not know that the Dix Family could give evidence that would effectually hinder Ottinger's claim. Francis had taken his old employees to Europe with him and their testimony was not available.



The Civil War then was raging and the aged inventor turned his thoughts to discomforts of military life. There was, in those days, no effective method of *waterproofing* cloth, and it was Francis' desire to provide some measure of protection for soldiers, sailors, and others exposed to the elements. Accordingly, he tried a cloth of woven metal that would be truly waterproof. A few hundred storm-hoods of this material were produced and issued to special service troops, before the close of the war. Reports on performance were favorable, but, with the return of peace, interest in the matter waned. This metallic fabric was Joseph Francis' *last* major invention. It does not mark the end of his activities.



Shortly after termination of the war, Joseph Francis purchased the property on Water Street, near the foot of Hooper Avenue, here in Toms River, New Jersey. In 1868, his home was completed and he took up residence. The house still stands on the same site, serving today as the central portion of The Riverview Hotel. The property was to remain in the Francis Family until 1898, when it was sold by the inventor's granddaughter, Sarah.



During his years in Toms River, Joseph Francis occupied himself with the affairs of the American Shipwreck and Humane Society. It will be remembered that the United States Life-saving Service was not as yet constituted; at each station, the U.S. Government maintained a supply of equipment, and, usually, one or two paid officers. The crews were entirely volunteer; if a man were disabled or lost his life in a rescue, there was no bounty for the unfortunate, no pension for the survivors. The Society concerned itself with providing a bit of security for the valiant surfmen, as

well as medals and cash rewards for deeds of notable heroism. This activity continued until 1871, at which time the paid personnel of the Life-saving Service took over the work.



After that year, Joseph Francis turned to other activities. A Russian had theorized that the ideal form for a boat would be a perfect circle; later, a Frenchman had conducted some experiments on this hull design and had published his conclusions in a scientific journal. A copy of this drifted into the old inventor's hands, and before long he had reopened the tool chest that had served to earn his bread in the wooden boat days of long ago, and was happily at work on his last vessel, the *round yacht, Sarah Francis*.

The *Sarah* was twelve feet long, twelve feet wide, and sixteen inches deep, making a perfect circle at the waterline. She was sloop-rigged, with a twenty-three foot mast, and she spread 837 square feet of canvas, the little *Sarah* was rated to carry ten persons.

It will be seen that the old inventor had succeeded in achieving a remarkable carrying capacity and an even more unusual spread of sail. Precisely as the European theories had predicted, she was unusually fast and steady; unfortunately, she worked to windward in a very erratic manner.

Francis continued his experiments with the queer little boat until well beyond 1880. In successive attempts to improve her performance, he added a fifteen-inch keel and, finally, a bow projection, changing her form from round to ovoid. It is in this later guise that the little *Sarah* is remembered by the older residents of Toms River. The boat was in local waters until the mid-80's, after which she was transferred to the lake at Lakewood, there to end her days.



In 1883, Joseph Francis was forced to return to New York because of failing health, and he remained in that city for about two years. During this time, his jewel-encrusted snuff-box (gift of Napoleon III) and his other European honors lay in the vault of C. B. Mathis' drug store, at Toms River, since it would appear that

no other fire-proof depository then was available. Your speaker had the privilege, within the last six months, of talking with this gentleman's son and hearing from his lips the story of at least one interview with Joseph Francis.

The elder Mathis had agreed to look after the Francis property during the owner's absence, and our informant had the happy opportunity to accompany his father on one trip to New York to consult with the aged inventor, at the Stevens House. At that time, the younger Mathis was about thirteen years of age.

The talk was much about property and investments and partly about the decorations that reposed in the pharmacist's safe; Francis' chief concern, however, seemed to be for the health of some young willow trees which he had started from cuttings which his only child, Isaac, had made from trees at Napoleon III's grave. Happily, the report was favorable, and some of the willows that still grow in Toms River are siblings of trees that rooted near the Emperor's tomb.



About this same time, something occurred that called the inventor from his sickbed. In 1883, Douglass Ottinger reappeared from the other side of his reputed grave and petitioned congress for a pension of \$2,500 per annum, again claiming to be the inventor of the life-car. With rare courage however, Captain Ottinger also claimed to have discovered Humboldt Bay in the Pacific, during the Year 1849. Investigators soon found that the bay was plainly marked upon Coast Survey charts printed in 1848, and Ottinger's claim was rejected.



Francis now held the medal of The Franklin Institute of the State of Pennsylvania; the medal of Ferdinand III, King of the Two Sicilies; the knighthood of Napoleon III; the knighthood of St. Stanislaus of Russia, and the medal of the European Life-saving Society. Only his own Country had withheld official recognition. In 1885, William M. Evarts, U.S. Senator from New York, introduced a resolution in the Congress, awarding the aged inventor The Congressional Medal.

It was not an immediate or an easy process. The first resolution died with the Congress of 1885-86; the second reached the floor on February 11, 1887, and was debated with considerable acrimony. One major political party had sponsored Ottinger's treasury raid and it would hardly be expedient, even thirty years later, to admit error and possible corruption. In this battle, the Democratic forces were joined by The Hon. James Donald Cameron, Republican Senator from Pennsylvania. Ottinger then was a resident of Erie, and Cameron apparently felt that local loyalties came first.

The fortunate effect of this disagreement was that the full historical testimony was put on the record. The resolution carried, and was sent on to President Cleveland for his signature; the latter, however, treated the document to a "vest pocket" veto.



The resolution for recognition of Francis was passed again in the next Congress; and, this time, went to President Harrison for his signature. The bill was signed and, in April 1890, in the Blue Room of the White House at Washington, the inventor received The Congressional Medal of Honor at the hands of the President. That day Mr. Evarts said: "Few lives have been more beneficent than that of Joseph Francis. Few have been more simple, more honest, more suitable to the dignity of a mechanic and workman and laborer, and few have had any larger sphere of distinction than that which belongs to honest labor, intelligently and benevolently applied."



The last years of the inventor's life were happy. He retained all his faculties and traveled widely. Every year, he spent some time on the Great Lakes, where his inventions were in wide use; part of every Summer was spent at Toms River, where, in later years, he usually stayed at the Oakerson house on upper Main Street, since he no longer cared for the burden of the big place on Water Street. Winters, he seems to have preferred to spend in the Glimmerglass country, around Cooperstown, New York.

It was from the latter place that he was called home, on May 10, 1893, full of years and full of honors. His remains rest in the spot he selected, near Minneapolis, Minnesota; his medals and honors repose beside the little *Ayrshire* life-car in The Smithsonian Institution.



His monuments are all about us!

THE END



*“Actorum Memores simul  
affectamus Agenda!”*

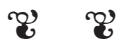




### *Acknowledgments*

THE AUTHOR wishes to acknowledge cooperation by the staff of The James Memorial Library in Madison, New Jersey; by The Rev. Henry Charlton Beck of Pennington, author of "New Jersey Genesis" and other historical works; cooperation by the staff of The Morristown Library, New Jersey; and by the reverend Clergy of Toms River. Without such help this compilation would not have been possible.

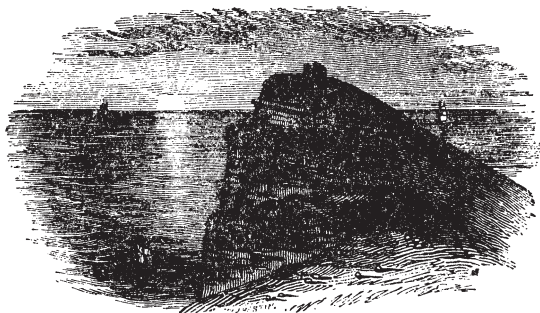
—J.B.E.





THIS NEWCOMEN ADDRESS, *memorializing the 100th Anniversary of the establishment, in 1850, of Ocean County, New Jersey, and dealing with the colorful and useful life of JOSEPH FRANCIS (1801-1893), American Shipbuilder, was delivered during the "1950 New Jersey Luncheon" of The Newcomen Society of England, held at Toms River, New Jersey, U.S.A., on July 27, 1950. Mr. Ehrhardt, the guest of honor, was introduced by the SENIOR VICE-PRESIDENT FOR NORTH AMERICA, in this international Society. The luncheon was presided over by DR. HARVEY N. DAVIS, President of Stevens Institute of Technology; Chairman of the New Jersey Committee, in The Newcomen Society of England.*





## NOTES

(1): Most records describe the *Ayrshire* as a ship; there is one report in historical compilations listing her as a brig.

The number of passengers would suggest that the usual description is the more probable.

(2): The Oakerson House, where Joseph Francis spent his later years, stood on upper Main Street, in Toms River, about where *Routes 9* and *37* intersect, today. The building was demolished in February 1925.

—J.B.E.







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1871; reprinted, 1885.

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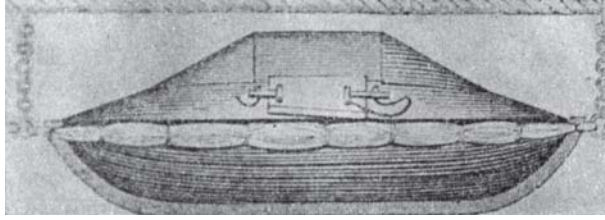
*Scientific American*, May 20, 1893

*Dictionary of American Biography*

*Sketch* by Carl W. Mitman

—J.B.E

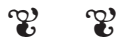




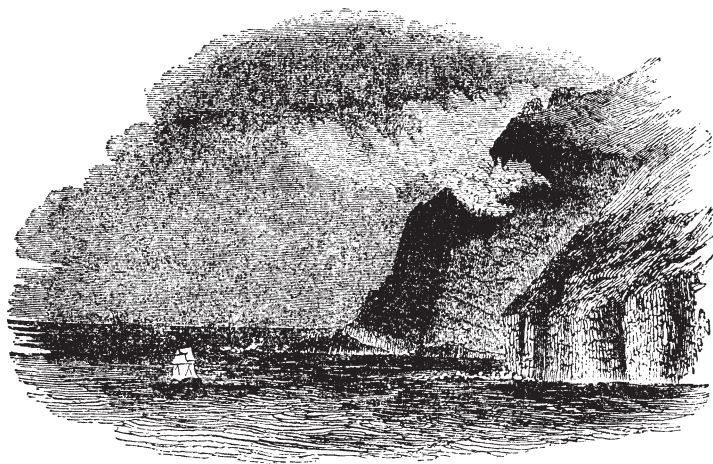
JOSEPH FRANCIS' famous "*Life-Car*"  
*View closed*

"Francis saw clearly that *a line* designed to carry a breeches buoy could carry a light, *enclosed container* (a 'life-car'), quite as well. The apparatus might be designed to carry as many as three passengers at one time, and the riders would be protected *within* the vessel, and should reach the shore in good condition."

—JOHN B. EHRHARDT



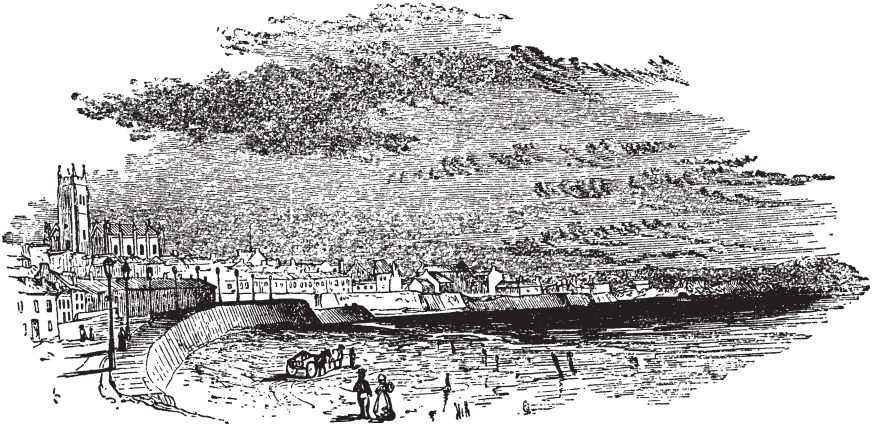
JOSEPH FRANCIS' famous "*Life-Car*"  
*Interior View*



“We are gathered to honor an industrial genius now, unfortunately, almost forgotten. We honor, too, this County of Ocean, the scene of his greatest triumphs, in New Jersey. Joseph Francis of Toms River has left his monuments all over the face of the Earth. They are monuments in flesh and blood. For the true and fitting *memorials* of this man Francis are *the bodies* of the men—and their descendants—whose *lives* his inventions *preserved!*”

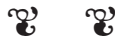
—JOHN B. EHRHARDT

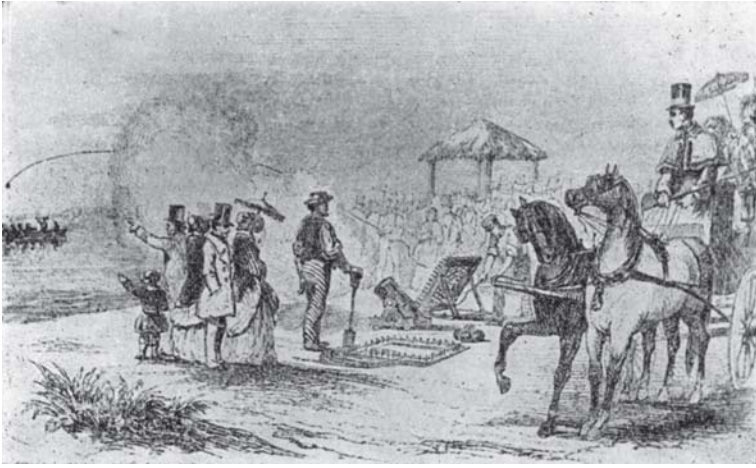




“The subject assigned me for this commemorative luncheon, here today in Ocean County, is especially appropriate, because it is one that spans oceans and provides one more link of fellowship and brotherhood between The English-Speaking countries. In this effort, England and the infant America worked hand-in-hand. One hundred years ago, a British writer noted with honorable pride that a master marine from a foreign country had testified: ‘I knew we must be off the coast of England because a lifeboat came out.’”

—JOHN B. EHRHARDT



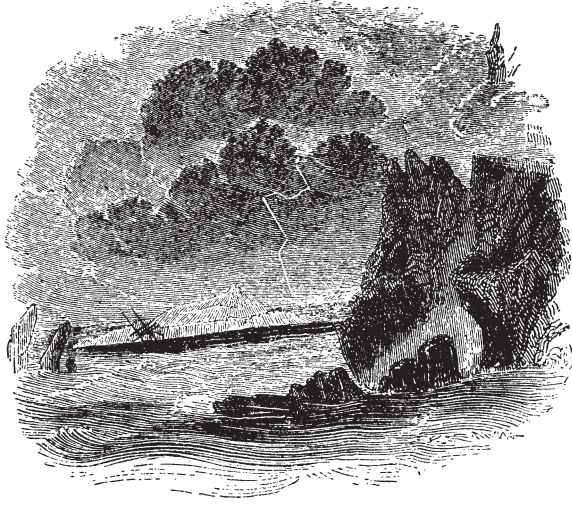


*Public Demonstration of Joseph Francis' Life-Saving Apparatus*

“It was from his winter retreat in the Glimmerglass country, around Cooperstown, New York, that Joseph Francis, brilliant inventive genius, was called home, on May 10, 1893, full of years and honors. His remains rest in the spot he selected, near Minneapolis, Minnesota; his medals and honors repose beside the little *Ayrshire* life-car in The Smithsonian Institution. His monuments are all about us!”

—JOHN B. EHRHARDT





*American Newcomen, interested always in the history of the Sea: shipbuilding, shipping, navigation, ocean-borne commerce, and trade; and interested in the contributions of pioneers whose genius has brought improvements and new developments of value to their fellow humans, takes satisfaction in this colorful and informative Newcomen manuscript which succeeds in giving a clear picture of the dramatic, courageous, and useful life of Joseph Francis (1801-1893), American Shipbuilder and man of broad understanding and fine humanity. His crowded life well may furnish inspiration for Americans today!*







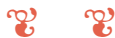
## THE NEWCOMEN SOCIETY OF ENGLAND

### IN NORTH AMERICA

**B**ROADLY, *this British Society has as its purposes: to increase an appreciation of American-British traditions and ideals in the Arts and Sciences, especially in that bond of sympathy for the cultural and spiritual forces which are common to the two countries; and, secondly, to serve as another link in the intimately friendly relations existing between Great Britain and the United States of America.*

*The Newcomen Society centers its work in the history of Material Civilization, the history of: Industry, Invention, Engineering, Transportation, the Utilities, Communication, Mining, Agriculture, Finance, Banking Economics, Education, and the Law—these and correlated historical fields. In short, the background of those factors which have contributed or are contributing to the progress of Mankind.*

*The best of British traditions, British scholarship, and British ideals stand back of this honorary society, whose headquarters are at London. Its name perpetuates the life and work of Thomas Newcomen (1663-1729), the British pioneer, whose valuable contributions in improvements to the newly invented Steam Engine brought him lasting fame in the field of the Mechanic Arts. The Newcomen Engines, whose period of use was from 1712 to 1775, paved a way for the Industrial Revolution. Newcomen's inventive genius preceded by more than 50 years the brilliant work in Steam by the world-famous James Watt.*





*“The roads you travel so briskly  
lead out of dim antiquity,  
and you study the past chiefly because  
of its bearing on the living present  
and its promise for the future.”*

—LIEUTENANT GENERAL JAMES G. HARBORD,  
K.C.M.G., D.S.M., LL.D., U.S. ARMY (RET.)

(1866-1947)

*Late American Member of Council at London  
The Newcomen Society of England*

